

**STUDY OF MISCONCEPTION IN THE SUBJECT MATTER OF REDOX
AND ELECTROCHEMICAL CELL IN BILINGUAL AND ENGLISH
EDITION TEXTBOOKS OF CHEMISTRY
FOR SENIOR HIGH SCHOOL**

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ABSTRACT

This research aimed to identify the concepts which lead to misconception in the subject matter of redox and electrochemical cell in bilingual and English edition textbooks of chemistry for senior high school.

This research was a descriptive qualitative research. The instrument which was used in this research was instrument of correct concepts in redox and electrochemical cell. In analyzing data, the concepts in textbooks of chemistry were compared with instrument of correct concepts. The sampling technique in this research was purposive sampling. Four textbooks for Xth grade and three textbooks for XIIth grade have been used as samples. As addition, there were two English textbooks of chemistry from Malaysia and United Kingdom.

The result showed that there were misconceptions and potential to misconceptions in the textbooks. The misconceptions from the textbooks were (1) definition of redox reactions based on the gain and loss of oxygen, (2) definition of oxidation number, (3) balancing the equation using half reaction method in basic condition, (4) the using of term " E° Oxidation", and (5) example of redox reactions. The potential to misconceptions from the textbooks were (1) definition of redox reactions based on the transfer of electrons and oxidation number, (2) the rules for assigning oxidation number, (3) reductor and oxidator, (4) balancing the equation using oxidation number method, (5) standard potential and cell potential, the value of E° , (6) inert and active electrode, (7) guidelines of writing the reaction on electrolysis cell, and (8) examples and exercises of electrochemical cells.

Key word: Misconception, Textbooks of Chemistry, Redox and Electrochemical Cell

**STUDI MISKONSEPSI PADA POKOK BAHASAN REDOKS
DAN SEL ELEKTROKIMIA PADA BUKU TEKS KIMIA
SMA EDISI BILINGUAL DAN BAHASA INGGRIS**

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ABSTRAK

Penelitian ini bertujuan untuk mengidentifikasi konsep-konsep yang mengalami miskonsepsi pada pokok bahasan redoks dan sel elektrokimia pada buku teks kimia SMA edisi bilingual dan bahasa Inggris.

Penelitian ini merupakan penelitian deskriptif kualitatif. Instrumen yang digunakan dalam penelitian ini adalah instrumen kebenaran konsep pada redoks dan sel elektrokimia. Pada analisis data, konsep-konsep dalam buku teks kimia dibandingkan dengan instrumen kebenaran konsep. Teknik sampling dalam penelitian ini adalah *purposive sampling*. Empat buku teks kelas X dan tiga buku teks kelas XII digunakan sebagai sampel. Sebagai tambahan, terdapat dua buku teks berbahasa Inggris dari Malaysia dan Inggris.

Hasil penelitian menunjukkan terjadinya miskonsepsi dan potensi miskonsepsi pada buku teks. Miskonsepsi pada buku teks meliputi (1) definisi reaksi redoks berdasarkan pelepasan dan penerimaan oksigen, (2) definisi bilangan oksidasi, (3) penyetaraan reaksi menggunakan metode setengah reaksi dalam suasana basa, (4) penggunaan istilah " E° Oksidasi", dan (5) contoh reaksi redoks. Potensi miskonsepsi pada buku teks meliputi (1) definisi reaksi redoks berdasarkan transfer elektron dan bilangan oksidasi, (2) aturan penentuan bilangan oksidasi, (3) reduktor dan oksidator, (4) penyetaraan reaksi menggunakan metode bilangan oksidasi, (5) potensial standar dan potensial sel, nilai E° , (6) elektroda inert dan aktif, (7) penulisan reaksi pada sel elektrolisis, dan (8) contoh dan soal-soal pada sel elektrokimia.

Katakunci: Miskonsepsi, Buku teks kimia, Redoks dan Sel Elektrokimia